

REMARKS

Applicants have carefully reviewed and considered the Office Action mailed on November 14, 2006, and the references cited therewith. Claims 1-20 are pending in the present application and stand rejected. Claims 1, 3-5, 7-8, 13 and 17 have been amended. Claims 2, 6, 9-12 and 18 have been cancelled. Reconsideration and allowance of the subject application, as amended, are respectfully requested.

Double Patenting Rejection

Claims 1-20 were provisionally rejected on the ground of non-statutory double patenting over claims 1-21 of co-pending US Application No. US 2005/0223141 A1. Applicants note the rejection and will file a terminal disclaimer upon the indication of allowance of claims in both applications.

Claim Amendments

Claim 1 has been amended to recite: “[a] method comprising: receiving an unbounded data frame from a parallel advanced technology attachment (ATA) to serial ATA bridge; storing said unbounded data frame in a receive buffer, said receive buffer comprising a plurality of buffers; controlling data flow into said receive buffer by filling successive ones of said plurality of buffers; establishing a threshold level in one of said buffers; and sending a hold command to said parallel ATA to serial ATA bridge to hold transmission of additional data when a level of said data in said receive buffer reaches said threshold level.” Support for this amendment may be found on pages 8 through 9, which recites in part:

“The data input to the buffer 208 may include the entire frame, e.g., frame 170a. Most frame types have a maximum length. For example, a S-ATA compliant frame typically has a maximum frame payload size of about 8 kilobytes (KB). However, exceptions may exist where the size of an incoming frame is unbounded. For example, if a transmitting device utilizing a Parallel Advanced Technology Attachment (Parallel ATA) communication protocol communicates with a S-ATA device via a Parallel ATA to S-ATA bridge to convert data from Parallel ATA to S-ATA, the Parallel ATA to S-ATA bridge may not breakup an unbounded FIS into smaller sizes. In this instance, the FIOS 306 of the S-ATA compliant frame 170a may be unbounded in size resulting in a frame 170a size much larger than 8 KB.

“To efficiently handle any frame size including unbounded frames, the receive buffer 208 may include a plurality of buffers 208-1, 208-2...208-n. Each of the plurality of buffers 208-1, 208-2 ... 208-n of the receive buffer 208 may be effectively linked by the buffer control circuitry 206. ... As a frame is received the first buffer 208-1 may accept a first portion of data until the first buffer 208-1 reaches a data full condition. The buffer control circuitry 206 may

sense this data full condition and direct additional data from the frame to be directed to the second buffer 208-2, and so on filling as many successive buffers as necessary to accommodate the frame.

“The buffer control circuitry 206 may continue to direct data to the next available buffer in the daisy chain of buffers 208-1, 208-2 ... 208-n until the receive buffer 208 reaches a high threshold level, e.g. high threshold level 290. If the high threshold level is not reached, the buffer control circuitry 206 may instruct the link layer circuitry to send a reception in progress type primitive to allow receipt of additional data

“However, the data in the receive buffer 208 may reach the high threshold level. This may be caused by lack of available data space in memory 210 to accept data from the receive buffer 208 and/or lack of remaining capacity in the plurality of buffers 208-1, 208-2...208-n. Once the data level in the receive buffer 208 reaches the high threshold level, the buffer control circuitry 206 may inform the link layer circuitry 214 to send a hold type command to inform the remote node transmitting data to hold transmission of additional data. ...The remote node transmitting data may be any variety of devices capable of transmitting data such as the intermediate devices 180, 182, mass storage 104, and/or the HBA 120.”

Applicants believe that no new matter has been added by this amendment. Claims 5, 11 and 17 have been similarly amended.

In addition, claims 3 and 4 have been amended to depend from claim 1. Furthermore, claims 7 and 8 have been amended to depend from claim 5. Claims 4 and 8 have been amended to delete the phrase “high.” No new matter has been entered by this amendment.

Claims 2, 6, 9-12, 15 and 18 have been cancelled.

35 USC §102 Rejection of the Claims

Claims 1-2, 4-6, 8-11, 13-15, & 17-19 were rejected under 35 USC § 102(b) as being clearly anticipated by Sekihata et al. (U.S. Publication No. 2002/0159480 A1).

As an initial matter claim 1 is now directed to an unbounded data frame received from a parallel advanced technology attachment (ATA) to serial ATA bridge. The unbounded data frame is stored in a receive buffer, which comprises a plurality of buffers. The data flow into the receive buffer is controlled by filing successive buffers of the plurality of buffers. A threshold is established in one of the buffers and a hold command is sent to the parallel ATA to serial ATA bridge to hold transmission of additional data when a level of said data in the receive buffer reaches the threshold level. Claims 5, 13 and 17 have been similarly amended.

Sekihata et al does not appear to disclose all of the claimed subject matter. More specifically, it appears that Sekihata discloses the use of packets having a known length, as the bandwidth control method according to Sekihata's invention comprises the steps of: “holding a

packet, counting a packet length of the packet, and reading the held packet at a line bandwidth and controlling a read start timing of a next packet, based on the packet length...” Sekihata, Paragraph 0010. As such, it would appear that Sekihata’s packets are of a known length and are therefore not unbounded. Nor does Sekihata et al appear to disclose the use of a parallel ATA to serial ATA bridge. Accordingly, as Sekihata et al does not appear to disclose all of the claimed subject matter, Sekihata does not anticipate or render obvious the claimed subject matter.

Claims 1-2, 4-6, 8-11, 13-15, & 17-19 were rejected under 35 USC § 102(b) as being clearly anticipated by Lorenz et al. (U.S. Patent No. 5,473,604).

Lorenz et al ‘604 does not appear to disclose all of the claimed subject matter. More specifically, it appears that Lorenz ‘604 discloses the use of packets. However, Lorenz ‘604 does not appear to teach or suggest the use of an unbounded data frame. Nor does Lorenz ‘604 appear to disclose the use of parallel ATA to serial ATA bridges. Accordingly, as Lorenz ‘604 does not appear to disclose or suggest all of the claimed subject matter, Lorenz does not anticipate or render obvious the claimed subject matter.

Claims 1-2, 4-6, 8-11, 13-15, & 17-19 were rejected under 35 USC § 102(b) as being clearly anticipated by Lorenz et al. (U.S. Patent No. 5,691,985).

Lorenz et al ‘985 does not appear to disclose all of the claimed subject matter. More specifically, it appears that Lorenz ‘985 discloses the use of packets. However, Lorenz ‘985 does not appear to teach or suggest the use of an unbounded data frame. In fact, Lorenz ‘985 discloses that in one embodiment, the status information of the packet “includes ATM header information (VPI, VCI, and Payload type), the length of the packet, and any errors (i.e., CRC errors) associated with this packet.” Col. 5, lines 8-22. In addition, the Applicants point to the disclosures in Col. 5, lines 49-64, Col. 5, line 65 through Col. 6, line 12, among various other disclosures in which the length of the packet is disclosed as being known. Furthermore, Lorenz ‘985 does not appear to disclose the use of parallel ATA to serial ATA bridges. Accordingly, as Lorenz ‘985 does not appear to disclose or suggest the claimed subject matter, Lorenz does not anticipate or render obvious the claimed subject matter.

35 USC §103 Rejection of the Claims

Claims 3, 7, 12, 16, and 20 were rejected under 35 USC § 103(a) as being unpatentable over Sekihata et al. (U.S. Publication No. 2002/0159480 A1). In addition, claims 3, 7, 12, 16, and 20 were rejected under 35 USC § 103(a) as being unpatentable over Lorenz et al. (U.S. Patent No. 5,473,604). Furthermore, claims 3, 7, 12, 16, and 20 were rejected under 35 USC § 103(a) as being unpatentable over Lorenz et al. (U.S. Patent No. 5,691,985).

As the dependent claims 3, 7, 12, 16 and 20 depend from amended claims 1, 5, 12 and 17; Applicants respectfully assert that the rejections of these claims have been rendered moot.

Having dealt with all the objections raised by the Examiner, it is respectfully submitted that the present application, as amended, is in condition for allowance. Thus, early allowance is earnestly solicited.

If the Examiner desires personal contact for further disposition of this case, the Examiner is invited to call the undersigned Attorney at 603.668.6560.

In the event there are any fees due, please charge them to our Deposit Account No. 50-2121.

Respectfully submitted,

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